

For Immediate Release

## Seneca Resources Recycles Oil-Field Produced Water with Eco-Tec's RecoPur<sup>®</sup> Treatment System

January 2010 *Pickering, Ontario* – Eco-Tec is pleased to announce the successful installation and start-up of a produced water treatment system at Seneca Resources near Bakersfield, California.

"We are pleased to announce the successful application of RecoPur<sup>®</sup> technologies to allow Seneca Resources to make use of recycled produced water as feed water to their steam generation system. This has allowed Seneca to discontinue the use of fresh water which is in scarce supply due to the ongoing drought in California" stated Mike Dejak, Eco-Tec Vice President. The system is designed for a throughput of 7,000 BPD (barrels per day). When operating at its maximum capacity the system will reduce the need for irrigation water by 107 million gallons annually.



**The Eco-Tec RecoPur<sup>®</sup> Produced Water Treatment System installed at Seneca Resources includes a Spectrum Filter<sup>™</sup> for oil and solids removal (background) and a Recoflo<sup>®</sup> SACPlus softener (foreground).**

The Bakersfield, California area is known for its heavy oil deposits, many of which require the injection of steam into the ground to allow the viscous oil to flow and be extracted through wells. Produced water is the water, which is extracted from oil wells along with oil. The nature of the water is such that it contains relatively high concentrations of dissolved salts (up to 11,000TDS) as well as chemical hardness. The hardness must be removed prior to recycling the water for reuse in the generation of more steam to be injected into the ground.

The produced water treatment system consists of conventional oil/water separation equipment including an induced gas flotation system, which is then followed by Eco-Tec's Spectrum Plus Micro Media Filter<sup>™</sup> technology for reduction in TSS (total suspended solids) and insoluble oil. Eco-Tec's advanced Recoflo<sup>®</sup> compressed bed, fine mesh resin, ion exchange technology removes hardness from the filtered produced water.

In order to achieve low hardness (i.e. less than 1 ppm hardness) in waters with high dissolved solids, it is common to use strong acid cation exchange (SAC) resins, which are regenerated with brine followed by weak acid cation exchange (WAC) resins, which are regenerated by hydrochloric acid and then caustic soda. However, the RecoPur<sup>®</sup> system now operating at Seneca demonstrates the successful application of Eco-Tec's SACPlus concept using Recoflo<sup>®</sup> softener in a SAC/WAC configuration using only brine for softener regeneration of both SAC and WAC beds. Elimination of hydrochloric acid and caustic from the WAC regeneration cycle allows for more economical equipment designs and results in a simpler and safer operation.

The equipment was completely manufactured, skid-mounted and tested (with resin installed) at Eco-Tec's manufacturing facility in Pickering, Ontario, Canada. Installation involved connecting the filter and softener skids to tanks at the site. The commissioning took one week and the system was producing soft water with hardness values of about 0.2-0.3 ppm as CaCO<sub>3</sub>. "The start-up went smoother than we expected" commented Mike Reynolds, Senior Field Technician at Seneca. Keith Jones, Seneca's Facilities Engineering Manager stated that "The equipment has performed well. I have been very pleased with Eco-Tec's technical services which have anticipated a number of possible challenges and came up with solutions that work."

### About Eco-Tec ([www.eco-tec.com](http://www.eco-tec.com))

Eco-Tec is an award-winning, globally recognized manufacturer of water purification, gas processing, and chemical recovery systems for industrial operations. Eco-Tec provides proven integrated technologies based on proprietary technologies that offer significant cost reduction and superior process efficiency. Eco-Tec has provided more than 1500 systems in over 55 countries, and is represented in all major markets.

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